



Break

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# SQL Syntax

Select \* from Sales. Customers

Schema

- Functional/organization
- Security

Table  
(information  
data)

# Postal City Attribute

CUSTOMERS

FK

custId	name	id112	PostalCity

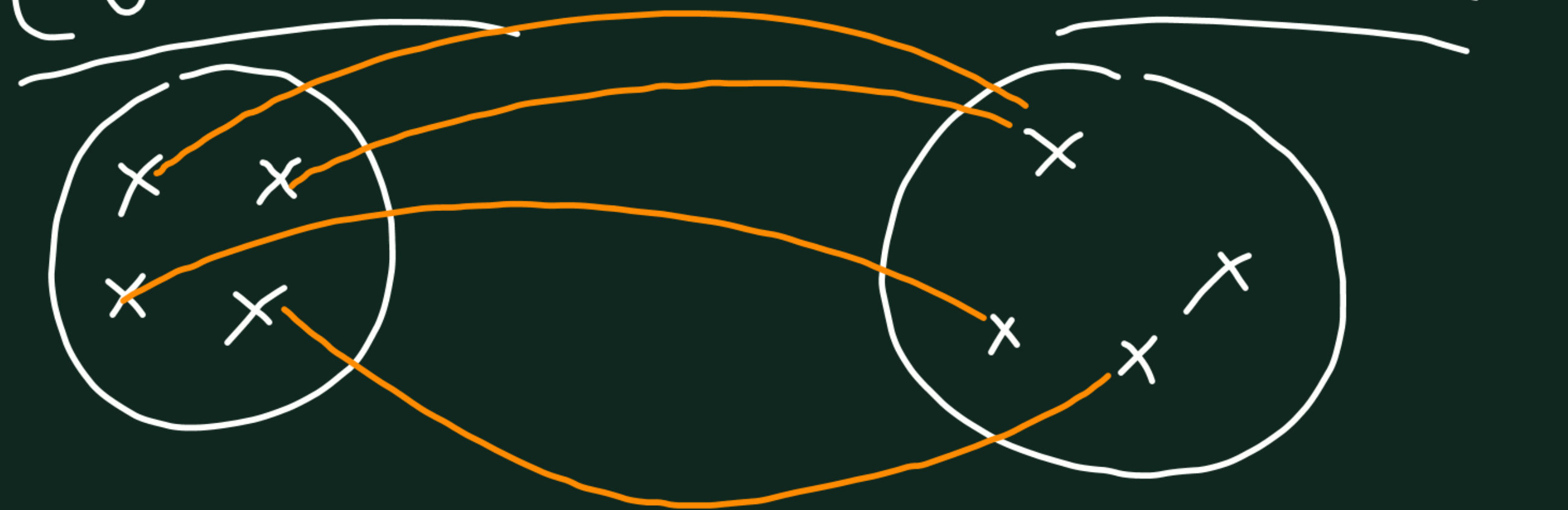
CITIES

PK CityId	CityName

# Natural Join

CUSTOMERS

CITIES



# SQL Count

select count(\*) from Customers

(column label)
663

~~7~~

663

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$\pi \rightarrow$  select Relational Algebra (1)

$\bowtie \rightarrow$  join

Customer Full Postal Address

One way to think about it:

$R_1 = \pi_{\text{CUSTOMERS}} ( \text{CustomerId, CustName, PA1, PA2, PCode, } \underline{\text{CityId}} ) \sim 1000 \times 6 \sim 6000$

$R_2 = \pi_{\text{CITIES}} ( \underline{\text{CityId}}, \text{CityName} ) \sim 46000 \times 2 \sim 86000$

$R_3 = R_1 \bowtie R_2$   $\text{PcityId} = \text{CityId}$

$R_4 = \pi_{R_3} (\text{CustId, CustName, PA1, PA2, PCode, CityName})$

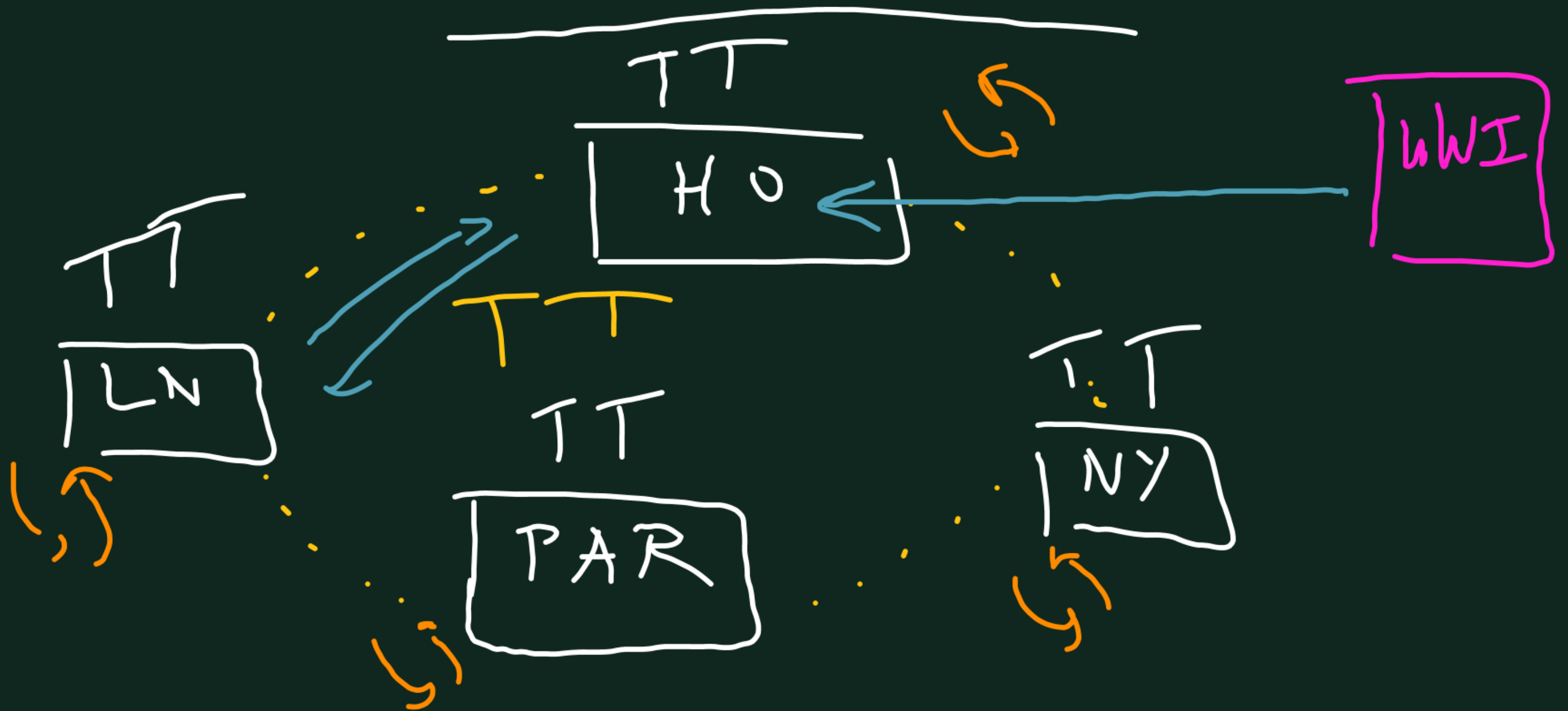
# Relational Algebra (2)

Another way:  $1000 \times 31 = 31000$   $\sim 40000 \times 10000$

$R_1 = \text{CUSTOMERS} \bowtie \text{CITIES}$   
 $\text{PostalCityId} = \text{CityId}$

$R_2 = \pi R_1 (\text{CustId}, \text{CustName}, \text{PA1}, \text{PA2},$   
 $\text{Pcode}, \text{CityName})$

# Bill to Customer Id (1)



Bill to Customer Id (2)

bill to Cst Id

What I want to see:

Cust Id	Cst Name	Bill to (Cst Id)	PA 1	PA 2	Addr	City
1	TT (H0)	TT (H0)	PO Box 897T	Rville	90410	Lisco
2	TT (TT)	TT (H0)	PO Box 8975	Rville	90410	Lisco
Customer 1		Customer 2				

BtoCustId  
=  
CustId

Bill to Customer Id (3)

CUSTOMERS FK

CustomeId	CustName	BtoCustId

CUSTOMERS

CustId	CustName	BtoCustId

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Bill to Customer Id (4)

CUSTOMERS 2

Cust Id	Cust Name	Bill to Customer Id	Cust. Cust Id
1	TT (H0)	1	
401	WT (H0)	401	

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BilltoCustomerId (T)

$$R_1 = \Pi_{\text{CUSTOMER}} ( \text{CustId}, \text{CustName}, \text{BilltoCustId} )$$

$$R_2 = \Pi_{\text{CUSTOMER}} ( \text{CustId}, \text{CustName}, \text{PA1}, \text{PA2}, \text{Pcode}, \text{PCityId} )$$

$$R_3 = R_1 \bowtie R_2$$

$$R_1.\text{BilltoCustId} = R_2.\text{CustId}$$

# Stock Items

STOCKITEM (S1)

STOCKITEM (S2)

→ USB GREEN  
→ USB BLUE  
→ T-SHIRT  
→ SLIPPERS  
⋮



USB GREEN

USB BLUE  
T-SHIRT  
SLIPPERS  
⋮